

REMARKS

Claims 1 to 23 are pending in this application. Claim 1-17 have been rejected. Claims 18-22 are withdrawn. Claim 1 is amended herein. New claim 23 is added.

The Rejection of the Claims

1. Claims 1-4 and 7-17 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 7,125,536 ("Fu et al."). Fu et al. is directed to nanostructured particles with high thermal stability. The Fu et al. composition contains silica as a thermal stabilizing agent. (Col. 8, lines 8-20).

Claim 1 herein is amended such that paragraph (c) recites a catalytic performance enhancing binder comprising at least about 1% by weight based upon total catalyst weight of fumed silica particles wherein said catalyst is formed into catalyst particles having a predetermined shape.

The fumed silica of the catalyst composition of the invention functions as a binder so that the catalyst can be formed into shaped particles (e.g., extrudates, spheres, pellets). As noted in Applicants' specification at pages 1 and 2, the prior art solid acid catalysts are typically in powder form and not suitable for commercial reactors which require shaped catalyst. Although the conventional solid acid catalysts can be admixed with a binder such as alumina, clay or silica to provide shaped catalyst particles with mechanical strength, the activity of the shaped, bound catalysts for certain reactions, e.g., alkane isomerization is reduced significantly as compared with the unbound, powder form of the catalyst.

Applicants herein have provided a catalyst/binder composition with both good mechanical strength and good catalytic performance.

Surprisingly it has been found that significantly better results can be obtained with fumed silica as opposed to other forms of silica or other binders.

For example, referring to the Comparative Examples and Examples presented in Applicants specification, it can be seen from Tables 1 and 2 that the catalytic performance of the fumed silica bound mixed oxide catalyst of the invention (Examples 1-5) was superior in terms of better n-C₇ conversion than the catalysts of Comparative Examples 1-5:

n-C₇ Conversion %

	<u>Examples</u>	<u>Comparative Examples</u>
1.	70.3	38.4
2.	57.1	9.1
3.	57.7	5.8
4.	59.7	13.4
5.	47.6	34.7

Isomer selectivity for the fumed silica bound catalysts were superior than that of Comparative Examples 2-4.

Fu et al. employs silica as a thermal stabilizer, not a binder. Fu et al. disclosed that after calcining the catalyst can be further processed by milling, i.e., grinding or pulverizing to a fine powder. (Col. 7, ll. 15-19). However, Fu et al. does not disclose or suggest shaped catalyst particles, or catalyst performance in conjunction with hydrocarbon conversion processes.

Accordingly, it is respectfully submitted that Fu et al. does not disclose or suggest Applicants' invention as defined by independent claim 1, or any claim depending therefrom. Reconsideration and withdrawal of the rejection are respectfully requested.

2. Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being obvious over Fu et al. in view of U.S. Patent No. 5,422,327 ("Soled et al."). Soled et al. is cited for disclosing catalytically active Group VIII noble metals and zirconia support unpregnated with silica. Claims 5 and 6 depend from claim 1, which is submitted to be allowable for the reasons stated above. Accordingly, claims 5 and 6 are also submitted to be allowable. Moreover, Soled et al. does not disclose anything which would remedy the deficiencies of Fu et al. as discussed above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

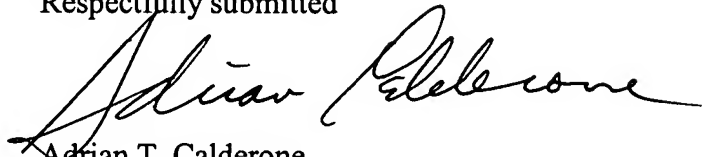
The New Claim

Claim 23 is newly added herein and depends from claim 1. Claim 23 further specifies the shape of the catalyst particles and is submitted to further distinguished over the cited prior art.

CONCLUSION

For at least the reasons stated above all of the pending claims are submitted to be in condition for allowance, the same being respectfully requested.

Respectfully submitted

A handwritten signature in black ink, appearing to read "Adrian Calderone", written over a horizontal line.

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